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10/662,478	09/16/2003	Sung-Bin Hong	44892	9628

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EXAMINER	
GEBRIEL, SELAM T	

ART UNIT	PAPER NUMBER
2622	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/662,478	HONG, SUNG-BIN	
	Examiner	Art Unit	
	SELAM T. GEBRIEL	2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02/20/2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *16 September 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 02/20/2009 have been fully considered but they are not persuasive. See response below and claim rejections for further explanation.

2. As for argument on pages 5 – 9: pressing. Takayama '643 patent only checks for defective pixels when manually triggered. Thus, the Takayama '643 patent does not disclose or suggest automatically controlling the shutter driving unit to periodically drive the shutter as recited in independent claim 1 or automatically exposing CCDs periodically to light for a predetermined amount of time as recited in independent claim

Examiner respectfully disagrees for the following reasons:

Col 11 Lines 45 – 67 to Col 12 Lines 1 – 39. First, as the defective pixel, there will be explained detection of white flaws which output signals of high luminance level (white) independently of images. **The detection of the white flaws is carried out for each turning on of power supply in a manner stated below.** After switch 15 is turned on, **switch signal** thereof is inputted in the **control circuit 8 or shutter driving unit** which then **controls aperture 12 (light quantity adjusting means)** to be opened fully, and a **dark image is photographed under the aforesaid condition by CCD1 in quantity equivalent to one image plane** (control means).

A white detection of whit flaws is carried out when the power supply switch is turned on, once the power supply switch turned on a switch signal is sent to the control unit 8 or shutter driving unit which the controls the aperture or light quantity adjusting means to be opened fully and a dark image is captured by

CCD1. It is clear that once the power switch is turned on all the operation of the camera is controlled automatically and the shutter drive unit is driven periodically (every time the power switch is on) to expose the CCD with light to capture images.

Output of the CCD1 which the photographed dark image (image for detecting pixel defects) is accumulated in memory for image 5, and CPU 6 compares a threshold value (reference image data) for judging white flaws stored in memory 9 in advance with image data of each pixel, respectively.

Since the dark image is photographed as stated above, when a pixel of CCD1 is normal, image data thereof is less than the threshold value stated above, but when the pixel has a defect representing white flaws, the value of the image data is equal to or higher than the threshold value, whereby the defective pixels (white flaws) are detected (pixel defect detecting means). when the defective pixels (white flaws) are detected, positional information (coordinates) of the defective pixels is stored in memory 9 (storing means) of the control circuit 8.

In the structure stated above, detection of white flaws is conducted automatically each time the power supply switch is turned on, and the positional information of the latest white flaws is stored in the memory 9, thereby it is possible to conduct correction which corresponds to changes with time of white flaws. **Therefore every time the white flaws detection is conducted automatically the shutter driving unit is controlled automatically to periodically drive the shutter to expose the CCDs**

Incidentally, since the white flaws show the tendency to increase with temperature rise, it is also possible to employ the structure wherein when the temperature of CCD1 detected by the temperature sensor 13 arrives at or exceeds the prescribed reference temperature; **the dark image is photographed so that the detection of white flaws may be conducted automatically**. When the structure mentioned above is employed, changes of increase in white flaws caused by temperature fluctuation can be detected surely and appropriate corrections can be carried out.

Further, in addition to the aforesaid method wherein detection of white flaws is conducted automatically with triggers such as turning on of the power supply and temperature rise, it is also possible to employ a method wherein when a mode for detecting defective pixels is selected by the mode switch 16, detection of white flaws by means of photographing of the dark image is conducted and thereby the white flaws are detected at any time.

It is clear that, the white flaw detection is can be conducted automatically or when a mode for detecting defective pixels is selected by mode switch 16, by using such methods white flaws are detected at any time. Therefore when ever a white flaw is detected either using a manual or automatic the shutter driving unit is automatically controlled since there is no user intervention involved to control the shutter driving unit and the CCDs are automatically exposed periodically (every time the power switch is on) for a predetermined amount of light. The

words automatically and periodically are very board terms so they are interpreted broadly.

3. The Examiner noted that claims 1 – 4 and 6 are presented using the phrase "**adapted to**" in the limitations.

It is noted by the Examiner that the term **"adapted to"** is non-limiting and therefore has not been given patentable weight during examination of the claims on their merits. Language that suggests or makes optional but does not require steps to be performed or does not limit a claim to a particular structure does not limit the scope of a claim or claim limitation. MPEP §2106.

The subject matter of a properly construed claim is defined by the terms that limit its scope. It is this subject matter that must be examined. As a general matter, the grammar and intended meaning of terms used in a claim will dictate whether the language limits the claim scope. Language that suggests or makes optional but does not require steps to be performed or does not limit a claim to a particular structure does not limit the scope of a claim or claim limitation. The following are examples of language that may raise a question as to the limiting effect of the language in a claim:

(A) statements of intended use or field of use,

(B) "***adapted to***" or "adapted for" clauses,

(C) "Wherein" clauses, or

(D) "Whereby" clauses.

This list of examples is not intended to be exhaustive. See also MPEP § 2111.04. USPTO personnel are to give claims their broadest reasonable interpretation

in light of the supporting disclosure. In re Morris, 127 F.3d 1048, 1054-55, 44 USPQ2d 1023, 1027-28 (Fed. Cir. 1997). Limitations appearing in the specification but not recited in the claim should not be read into the claim. E-Pass Techs., Inc. v. 3Com Corp., 343 F.3d 1364, 1369, 67 USPQ2d 1947, 1950 (Fed. Cir. 2003) (claims must be interpreted "in view of the specification" without importing limitations from the specification into the claims unnecessarily). In re Prater, 415 F.2d 1393, 1404-05, 162 USPQ 541, 550- 551 (CCPA 1969). See also In re Zletz, 893 F.2d 319, 321-22, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989) ("During patent examination the pending claims must be interpreted as broadly as their terms reasonably allow.... The reason is simply that during patent prosecution when claims can be amended, ambiguities should be recognized, scope and breadth of language explored, and clarification imposed.... An essential purpose of patent examination is to fashion claims that are precise, clear, correct, and unambiguous. Only in this way can uncertainties of claim scope be removed, as much as possible, during the administrative process.").

Claim Rejections - 35 USC § 102

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims 1 – 4, 6, 7, 9, and 10 are rejected under 35 U.S.C. 102 (e) as being anticipated by Takayama et al. (US 6,683,643 B1).

Regarding claim 1, Takayama discloses a charge coupled device (CCD) camera (Figure 1 Digital Still camera, Col 10 Line 60 – 61) that compensates for defective CCDs, comprising:

A shutter (Figure 1 Aperture or light adjusting means12), adapted to adjust incident light for a specific amount of time (Col 11 Line 53 – 58);

A shutter driving unit (Figure 1 Control circuit 8, Col 11 Line 53 – 58), adapted to drive the shutter (Col 11, Line 53 – 58, The control circuit 8 controls aperture 12 to be opened fully and closed and See Col 19 Line 57 – 63);

A CCD module (Figure 1 CCD 1) comprising a plurality of CCDs that are adapted to output electric signals based on an amount of light incident through the shutter (Col 11 Lines 52 – 62);

A memory (Figure 1 Memory for image 5), adapted to store electric signals provided by the respective CCDs transmitted from the CCD module (Col 11 Line 8 – 10); and

A control unit (Figure 1 Control Circuit 8), adapted to perform the following operations:

Automatically controlling the shutter driving unit to periodically drive the shutter (Col 11 Lines 45 – 67 to Col 12 Lines 1 – 39 and See response to argument).

Sequentially storing in the memory (Figure 1 Memory for image 5) photo-electrically converted signals with respect to the individual CCDs of the CCD module (Col 11, Line 11 – 15);

Comparing the respective CCD signals stored in the memory to a preset CCD defect threshold level (Threshold value or reference image data) to detect location information of CCDs that output signals larger than the CCD defect threshold level (Col 11 Line 59 – 67 to Col 12 Line 1 – 12); and

Replacing each of the respective signals from the CCDs that output signals larger than the CCD defect threshold level with a respective average signal representing an average of the signals output by the CCDs adjacent to the respective CCDs that output the larger signals based on the location information (Col 15 Line 13 – 67 to Col 16 Line 1 – 9 and see also Figure 6).

Regarding claim 2, Takayama discloses the CCD camera according to claim 1, wherein the control unit is adapted to control the shutter driving unit to operate the shutter at a low speed (Col 23 Line 48 – 59 teach when the exposure time or shutter speed is low or short, processing speed can be improved by making the number of defective pixels to be corrected small and Col 16, Line 45 – 50).

Regarding claim 3, Takayama discloses the CCD camera according to claim 1, wherein the control unit is adapted to control the shutter driving unit to operate the shutter at a low speed in a predetermined interval based on a vertical period of the CCD data (Col 23 Line 48 – 59 teach "when the exposure time or shutter speed is low or short, processing speed can be improved by making the number of defective pixels to be corrected small", See also Col 9, Line 3 - 17 and Col 16, Line 45 – 50).

Regarding claim 4, Takayama discloses the CCD camera according to claim 1, wherein the control unit is adapted to control the shutter driving unit to alternately operate the shutter in odd fields and even fields of the CCDs at the low speed (Col 23 Line 48 – 59 teach "when the exposure time or shutter speed is low or short, processing speed can be improved by making the number of defective pixels to be corrected small", See also Col 9, Line 3 - 17 and Col 16, Line 45 – 50).

Regarding claim 6, Takayama discloses the CCD camera according to claim 1 further comprising:

A second memory (Figure 1 Memory 9, Col 12 Line 5 – 8), adapted to store the location information of defective CCDs, wherein during the comparing operation, the control unit compares the electric signals of the individual CCDs to the CCD defect threshold level, and during the replaying operation the control unit arranges and stores in the second memory at a descending order of signal values the location information relating to the CCDs having electric signals larger than the CCD defect threshold level (Col 6, Line 39 – 59).

Regarding claim 7, Takayama discloses a method for controlling a CCD camera to correct for defective CCDs, comprising:

Automatically exposing CCDs periodically to light for a predetermined amount of time (Col 11 Lines 45 – 67 to Col 12 Lines 1 – 39 and See response to argument);

Sequentially storing electric signals of individual CCDs based on the exposure (Col 11, Line 11 – 15);

Sequentially reading out the stored electric signals of the individual CCDs (Col 6, Line 39 – 59, The signal level of electric signals for each one image plane outputted from the solid image pickup element is compared with the prescribed threshold value for each pixel by the pixel defect detecting means, this means the electric signals are readout for the memory in order for the electric to be compared);

Comparing the electric signals to a preset CCD defect threshold level (Col 6, Line 39 – 59);

Storing location information relating to CCDs having electric signals larger than the CCD defect threshold level as a result of the comparison (Col 6, Line 39 – 59); and

Replacing each of the individual signals from the CCDs for which the location information is stored, with an average signal (mean value, Col 15 Line 13 – 67 to Col 16 Line 1 – 9) representing an average of the signals output by the CCDs adjacent to the individual CCDs based on the location information (Col 15 Line 13 – 67 to Col 16 Line 1 – 9, Abstract, and see also Figure 6).

Regarding claim 9, Takayama discloses the method according to claim 7, further comprising:

Arranging in a descending order of signal values the location information relating to the CCDs having electric signals larger than the CCD defect threshold level, after comparing the electric signals of the individual CCD devices to the CCD defect threshold level (Col 6, Line 39 – 59).

Regarding claim 10, Takayama discloses the method according to claim 9, wherein:

The storing step comprises storing the arranged signal values arranged in the arranging step (Col 11, Line 11 – 15).

Claim Rejections - 35 USC § 103

6. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

7. Claims 5 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takayama Et al. (US 6,683,643 B1) in view of Hayashi, Tomoaki (JP 402105683 A).

Regarding claim 5, Takayama discloses the CCD camera according to claim 1, wherein:

During the comparing operation, the control unit (Figure 1 Control Circuit 8) read out electric signals of the individual CCDs from the memory and compares the electric signals to the CCD defect threshold level (Col 6, Line 39 – 59);

During the comparing operation, the control unit compares the electric signals of the individual CCDs to the CCD defect threshold level (Col 6, Line 39 – 59); and

During the replacing operation, the control unit arranges and stores in a second region of the memory at a descending order of signal values the location information relating to the CCDs having electric signals larger than the CCD defect threshold level (Col 15 Line 13 – 67 to Col 16 Line 1 – 9, Abstract, Figure 6, and Col 6, Line 39 – 59).

Takayama does not explicitly teach the control unit amplifying the electric signal outputted or read out from the memory device

Hayashi disclose an amplifier 4 amplifies the output signal from the CCD sensor including the output of the defective pixel photodiode at the timing of the defective photodiode with a gain as twice an ordinary gain (Abstract).

Therefore it would have been obvious to one ordinary skilled in the art at the time the invention was made to amplify the defective signal outputted from the CCD and readout from the memory as taught in Hayashi. The motivation to do so is that by

amplifying the outputted signal of the photodiodes or CCDs, it will be possible to interpolate or correct the defective signal of the photodiodes or CCDs effectively.

Regarding claim 8, Takayama discloses the method according to claim 7, wherein the step of comparing comprises:

Takayama teach reading the electric signals of the individual CCDs (Col 6, Line 39 – 59); and

Comparing the electric signals of the CCDs to the CCD defect threshold level (Col 6, Line 39 – 59).

Takayama does not explicitly teach the control unit amplifying the electric signal outputted or read out from the memory device

Hayashi disclose an amplifier 4 amplifies the output signal from the CCD sensor including the output of the defective pixel photodiode at the timing of the defective photodiode with a gain as twice an ordinary gain (Abstract).

Therefore it would have been obvious to one ordinary skilled in the art at the time the invention was made to amplify the defective signal outputted from the CCD and readout from the memory as taught in Hayashi. The motivation to do so is that by amplifying the outputted signal of the photodiodes or CCDs, it will be possible to interpolate or correct the defective signal of the photodiode or CCDs effectively.

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Contacts

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SELAM T. GEBRIEL whose telephone number is (571)270-1652. The examiner can normally be reached on Monday-Friday 7:30 am - 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tran Sinh can be reached on 571-272-7564. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Selam T Gebriel/
Examiner, Art Unit 2622
Wednesday, April 08, 2009

/JOHN M. VILLECCO/
Primary Examiner, Art Unit 2622
April 12, 2009